

regular features, and nostrils not so dilated as those of their neighbours. A curious peculiarity is the power of bending the elbow the wrong way, and similarly distorting the wrist joint, so that the hand can be bent over till the back of it touches the arm. This, however, does not appear to be the result of any special conformation of the joints, but rather of a long and severe course of training, in which "force is often resorted to in order to distort nature's handiwork" (p. 321). It will be remembered that one of the distinctive features of Krao, the little specimen brought from Bangkok by Mr. Bock, was a remarkable pliancy of the joints, extending even to the toes, which were almost as prehensile as those of the higher apes.

Amongst the illustrations is a curious design by a native artist (unfortunately "invested with artistic merit" by the English engraver) representing a scheme of the universe, with Mount Zinnalo, the Meru of the Hindus, as the centre. Above all is the outer darkness, or Buddhist *Nirvana*, usually supposed to involve extinction, or at least absorption in the divine essence, but which our author agrees with Mr. Alabaster in identifying rather with the highest heaven, a place of perfect happiness or repose. But however this be it is obvious that the Laotian Buddhism has been otherwise profoundly modified by the older cult, on which it has been engrafted, and from which it still takes its colouring. This older cult was little more than a universal spirit-worship, probably the first distinct stage in the evolution of all religious systems. Hence "the desire to propitiate the good spirits and to exorcise the bad ones is the prevailing influence on the life of a Laosian. With 'phee's' to right of him, to left of him, in front of him, behind him, all round him, his mind is haunted with a perpetual desire to make terms with them, and to insure the assistance of the great Buddha, so that he may preserve both body and soul from the hands of the spirits, and, by making merit either in almsgiving, in feeding the priests, in building temples or prachedees, he may ultimately attain supreme happiness" (p. 198). At Muang-Fang the people are shown a telescope, whereupon they immediately ask, "Can you see the spirits through it?" And when it is reversed so that everything seems to fade away in the distance, they are hugely delighted at such a wonderful instrument, which has the power of making all things—spirits of course included—near or far off at the will of the owner!

Then these spirits, some of which, such as the phee-ka, are very baneful, require to be thwarted by all sorts of counter-charms, conjurings, exorcisms, spirit-dancings, and other devices of the professional medicine-men, and even of "paid mediums." For this institution—somewhat of an anachronism in the West—still flourishes in the Far East, where almost every family has its private mediums, who are consulted on all urgent affairs, and who, when required to question the spirits, work themselves into a state of ecstasy, and utter short, incoherent sentences, regarded as the oracles of the spirit world.

Amongst the illustrations are a coloured engraving by the author, giving a good idea of the "white elephant" visited by him at Bangkok, and a life-size portrait of the enlightened young King of Siam, to whom the work is dedicated. There are also an index and a small sketch-

map of the route followed, in which the geographical nomenclature is, as usual, at variance with that of the text. Thus we have Kiang-mai, Toune, Me-ouang, Chandaw, for Cheng-mai, Tunn, Me-wang, and Shandau respectively.

A. H. KEANE

### LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.]

#### The Remarkable Sunsets

ALTHOUGH the prevailing mist and fog do not make the summit of Ben Nevis as a rule a favourable situation for viewing sunsets, yet, when clear and fine, the colours of the sky shine out with far greater clearness and purity than at lower levels. For about a week at the end of last month we had fine weather, and the colours of the sky before sunrise, after sunset, and even during the day, were of the most extraordinary character.

On December 30 before sunrise the lower sky to eastward, between a cloud-bank and a thin dark band of stratus, was pale green, above the stratus it was yellow, passing into red higher up. This arrangement of colour was not observed again; on other days the sky was red or yellow at the horizon, passing into green and blue higher up. At sunset on the 30th the colours were of the most gorgeous description—dark smoky red below, passing into blue and violet without any intermediate shade of green.

Similar colours have no doubt been seen as well at lower levels at sunrise and sunset, but here we see the sky round the horizon coloured in the most wonderful manner all day long—usually a copper red under the sun, and a peculiar dirty green at the opposite azimuth. But it is impossible to give any idea of the exceeding beauty and weirdness of the tints at sunrise and sunset—the whole sky near the sun gleaming with constantly changing masses of colour, indescribable tints of red and green mingled in wild confusion.

On December 31 the thin edge of the crescent moon (three days old) was bright green, but I have not observed any unusual colour in the sun itself.

R. T. OMOND

Ben Nevis Observatory, January 9

I BEG your acceptance of the two inclosed clippings from the *Saturday Press* of this city, together with an advance sheet from Thrum's *Hawaiian Annual* for 1884, which contain nearly all that has been put into print here about the wonderful "after-glow" which has excited such attention in so many parts of the globe. In the first communication of September 19, I recorded the important date of September 5, when the first and most brilliant display was observed, being moved thereto by the arrival of the news of the Java eruption, whose proximity in time seemed to lend especial importance to the phenomenon. In the second notice is recorded an observation of like phenomena in lat.  $24^{\circ} 06' N.$ , long.  $140^{\circ} 29' W.$ , 1100 miles east-northeast of us, from the log of the bark *Hope*, Penhallow, master, on September 18.

In my article in the *Hawaiian Annual*, the record is brought down to November 25, during which month the glow continued, somewhat diminished. Since then it has again increased in a marked degree. I have also been enabled to definitely connect ourselves with Melanesia and Micronesia. Brig *Hazard*, Tierney, master, arrived from those parts on December 5. Capt. Tierney is reliable and intelligent. He reports to me that on September 1, when off the south-west coast of New Ireland, about lat.  $5^{\circ} S.$ , long.  $152^{\circ} E.$ , he first observed the "glare," as he termed it; and again on September 3 off New Hanover, two degrees further west. It was identical in character with what he has seen since arriving in Honolulu. It would seem to have been rather less brilliant than was first observed here September 5, as described in the inclosed clipping. During his voyage from New Hanover, sighting Ascension, calling at the Marshall Islands, and thence to Honolulu,

over ninety days in all, the "glare" was of *constant occurrence*. By the arrival of O.S.S. *Mariposa* from San Francisco, December 1 to 8, I am happily able also to trace a continuous line of these phenomena hence to that point. They were not observed there until about November 23. Two of our leading citizens who came down by the *Mariposa* assure me that the appearances there were identical with ours, and further that they were of frequent recurrence during the whole passage. We thus prove a continuous chain of these phenomena from New Zealand to California.

Permit me to call special attention to the very peculiar corona or halo extending from  $20^{\circ}$  to  $30^{\circ}$  from the sun, which has been visible every day with us, and all day, of whitish haze, with *pinkish* tint, shading off into *lilac* or purple against the blue. I have seen no notice of this corona observed elsewhere. It is hardly a conspicuous object.

The long continuance and extending diffusion of this haze or dry fog seems to justify expectation that it may become visible around the globe, and give ample opportunity for investigation.

Although not seen in San Francisco until November 23, it was brilliant in Santa Barbara on October 14. A rapid upper current seems to have borne it in a belt within the tropics in a very few days, leaving a slow diffusion to extend it to the temperate zone. Australia is perhaps an example of this.

I trust this letter may be a useful contribution towards a complete history of the diffusion of this very peculiar element around the globe. A good record of dates of earliest appearances might contribute something to our limited knowledge of currents in upper strata of the atmosphere.

Honolulu, December 14, 1883 SERENO E. BISHOP

[We have already referred to Mr. Bishop's letters in the Honolulu journal, but give here the following extract from his article in the *Hawaiian Annual*:—

"It now seems probable that the enormous projections of gaseous and other matter from Krakatoa have been borne by the upper currents and diffused throughout a belt of half the earth's circumference, and not improbably, as careful observation may yet establish, even entirely around the globe. This implies an amount of matter discharged that seems incredible. We learn, however, that the ocean was thickly and closely covered with floating pumice for hundreds of miles from the crater. A steamer 150 miles distant reports her barometer falling and rising half an inch every two or three minutes! This almost incredible statement implies a terrific undulation of the atmosphere, such as could only be produced by a vast and continuous jet of gas projected upwards beyond the limits of the atmosphere, and driving the air in vast waves in every direction. So abnormal and gigantic a force may well have propagated not only its tidal waves as it did across the Pacific, but it may also have transmitted its portentous and lurid vapours to belt the globe with flaming skies."]

FOR the last two months these appearances have in this province excited no small wonder and admiration, not unaccompanied in some cases with awe and dismal forebodings of impending calamity. As an example of what has been witnessed in greater or less intensity almost every morning and evening, about an hour before sunrise and after sunset, I may instance what was observed on the evening of the 29th and morning of the 30th ult. The ground from my residence rises towards the south and west, and the city of Fredericton lies towards the north-east, on a flat 100 feet lower, and at a distance of half a mile or more. On the evening in question, at an hour after sunset, the red glow in the sky was very conspicuous, and seemed to light up the whole heavens, so that the houses in the city were distinctly seen by the reflection from their sides, and the intervening snow appeared of an orange colour. It was bright enough to suggest the impression of a second sunset. Next morning at an hour before sunrise the deep red glow was equally decided.

Fredericton, New Brunswick, January 3 W. BRYDNE-JACK

IN response to your note in NATURE of December 13, 1883 (p. 157), I beg to inform you that the recent red sunsets have been especially observed by me on the following occasions:—

November 30, 1883, lasting until 5.30 p.m.; barometer at 1 o'clock  $30.22$  inches, at 9 p.m.  $30.10$ .

January 2, 1884, lasting until 7.30 p.m.; barometer at 1 p.m.  $30.48$ , at 9 p.m.  $30.43$ .

January 3, 1884; Barometer at 1 p.m.  $30.30$ , at 9 p.m.  $30.23$ .

On several other occasions the same phenomenon has been observed in a less degree.

AD. WENTZ'L, JUN.

Krasnicza Wola, Grodzisk, near Warsaw, January 11

THE "red glow" has again been very brilliant here on the evenings of January 9 and 10, as well as on the morning of January 10. On the following morning, January 11, the sky being likewise very clear, I confidently expected another display, but to my astonishment no trace of red did appear, the sun rising after an ordinary twilight of pale yellow. During the night a strong south wind had set in, which prevailed through the whole day, with extraordinary transparency of the air. In the evening clouds arose in the west, at first showing the red marginal colouring of ordinary sunsets, but later on there came again, distinctly higher than even the cirri, a very brilliant and lasting red luminosity.

It would be interesting to know whether at other places too the phenomena in question had been, as it were, suspended on the morning of January 11, in spite of a clear sky, or whether such a suspension had occurred on other days under similar meteorological circumstances.

D. WETTERHAN

Freiburg, Badenia, January 12

THE last two days and nights here have been very fine with sunrises and sunsets as already described. This evening especially the colours were most brilliant, and did not fade away until at least an hour after sunset. It may interest those who are trying to account for this extraordinary appearance of the sky to know that here it has been followed by excessive rain and very bad weather. During December we had 9.57 against an average for the last twenty-two years of 4.46 inches. The greatest December rainfall registered at our Scutari Cemetery was 10.36 in 1862, the least being one inch in 1868. A printer's error makes me speak, in my letter of December 21, of a crescent moon "eighteen" days instead of 18 day old.

W. E. J.

Constantinople, January 11

### Dust Atmosphere of China

IN the remarkable work on China by V. Richtofen, he gives (vol. i. p. 97) the following description of the *dust atmosphere* of the Loes country, China, which, it seems to me, bears upon the question of the influence of dust on the appearance of the sun and sky, the question now under discussion.

"All these, and other similar operating causes, give rise to that dust atmosphere (*Staubatmosphäre*) so characteristic of Central Asia, and still more particularly of the Loes District. Even during nearly complete calms the air is often for many days yellow and opaque. The view is completely hemmed in, and the sun appears merely as a dull bluish disk. More markedly is this character presented by these peculiar dust-storms so well known to travellers visiting Tien-tsin and Peking, and even more so to those who travel in the interior of the north-western provinces of China. The wind then blows from Central Asia; when it acquires motion, everything becomes coated with a fine, yellowish dust coating.

"In Shensi, where the atmosphere is but rarely clear and transparent, the whole landscape has a yellow tint; streets, houses, trees and crops, even the traveller one meets on the road, and the air itself, one and all are yellow-coloured."

He also cites Johnson's "Journey to Ilchi, the Capital of Kotan" (*R. Geogr. Soc.* xxxvii. 1867, p. 5), as bearing on this same character of those dry, dusty atmospheres.

Dublin, January 7

J. P. O'REILLY

### Electric Shadows

ON reading Prof. Thompson's communication to NATURE of the 13th ult. (p. 156), giving the result of Prof. Righi's researches on the production of electric shadows in air at the ordinary pressure, I at once endeavoured to repeat the experiments with such simple means as were at hand. Two sticks of sealing-wax stuck to a small iron stand sufficed to support a long, big headed pin and the screen or object for casting the shadows. Instead of a plate of ebonite I used a cake of resin of six inches diameter, which serves ordinarily for the production of Lichtenberg's